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मानक

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“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

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“Step Out From the Old to the New”

IS 12396 (1988): Paddy Cleaner [FAD 20: Agriculture and Food Processing Equipments]



“ज्ञान से एक नये भारत का निर्माण”

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“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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Indian Standard

SPECIFICATION FOR
PADDY CLEANER

“पुनर्विचार १९९५”
“RE-AFFIRMED 1995”

1. Scope — Specifies material, constructional, performance and other requirements of paddy cleaners.

2. Terminology — For the purpose of this standard, the definitions given in 2 of IS : 8440-1977 'Test code for paddy cleaners' shall apply.

3. Materials

3.1 Mild steel [see IS : 226-1975 Specification for structural steel (standard quality) (*fifth revision*) or IS : 1977-1975 Specification for structural steel (ordinary quality) (*second revision*)], cast iron [see IS : 210-1978 Specification for grey iron castings (*third revision*)] and wood (see IS : 399-1963 Classification for commercial timbers and their zonal distribution) shall be used in fabrication of various components of the cleaners. The sheets used shall be not less than 0.7 mm thick.

3.2 Sieves used in the cleaners shall be manufactured from the material specified in IS : 2405 (Part 2)-1980 'Specification for industrial sieves: Part 2 Perforated plates (*first revision*)'.

3.3 The material for various components shall be declared by the manufacturer.

4. Performance Requirements

4.1 The cleaner shall be operated at no load as given in 7.1 of IS : 8440-1977. During the no-load run, the visual observations shall not indicate the following:

- Presence of any marked vibration during operation,
- Presence of undue knocking or rattling sound,
- Frequent slippage of belts,
- Non-smooth running of shafts in their respective bearings,
- Any marked unusual wear or slackness in any component,
- Any marked rise in bearing temperature, and
- Vibration in fan running.

4.2 The rated input capacity in quintals per kWh energy consumed, with 5 and 10 percent foreign matter in the paddy mass, shall be declared by the manufacturer. The various adjustments, clearances and speeds for that capacity shall also be declared. When tested in accordance with the method given in 8.1.9 of IS : 8440-1977, the declared capacity shall not differ by ± 5 percent.

4.2.1 During and after the capacity test, the visual observation shall not indicate the following:

- Observations given under 4.1 (a) to (g);
- Frequent clogging of screen perforations;
- Non-smooth flowing of material through different components;
- Frequent clogging of grain in elevator unit;
- Frequent clogging of aspiration unit;
- Any marked wear, deformation and breakdown;
- Frequent loosening of fasteners; and
- Leakage of grains from the cleaner, while in operation.

4.3 When tested in accordance with 8.2 of IS : 8440-1977, no breakdown shall occur in any unit of the cleaner.

5. Constructional Requirements

5.1 Frame shall be made of suitable size mild steel angle section or wood and shall be provided with proper bracings.

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5.2 Hopper shall be provided with a feed regulating device capable of distributing the feed evenly to the cleaner.

5.3 One or two oscillating and/or rotary screens, depending on the size of the cleaners, shall be used.

5.4 Blower shall be provided with a control to regulate air flow rate.

5.5 Suitable system for transmitting the power shall be provided. It may consist of V-belt and pulley, gears or sprocket and chain.

5.5.1 Transmission guards shall be provided to prevent accidental contact of persons or parts of clothing being caught in the transmission system, unless the system is so constructed or placed as to be safe without guards.

5.5.2 The guards shall be so designed as not to hinder in easy adjustment, servicing and operation of cleaner.

5.5.3 It is preferable that all guards shall be either permanently attached or firmly secured to prevent their removal without the aid of tools. The servicing and adjustments should be possible without complete removal of the guards.

5.5.4 The guards shall have sufficient strength to support load of 1 200 N applied at any point over an area of 0.1 m² without permanent set.

Note — Depending upon space available, the area and load may be correspondingly increased or decreased for testing purposes.

5.6 The shafts and eccentrics shall be supported on ball or roller bearings at both the ends.

6. Other Requirements

6.1 Provision for the adjustments of the following shall be made:

- a) Feed rate, and
- b) Air displacement.

6.2 Various controls shall be easily accessible and capable of being locked in a chosen position.

6.3 In case of belt drive, provision for belt tightening shall be made.

6.4 Magnets shall be provided to arrest iron contaminants.

6.5 Provision for cleaning the screen and to avoid clogging shall be provided.

6.6 Suitable inspection window may be provided to inspect the process of cleaning.

6.7 The cleaner shall be provided with the operators manual [see 4.2 of IS : 8132-1983 Guidelines for presentation of operator manual and technical publications for agricultural tractors and machinery (*first revision*)]. Manual shall also contain the information given in Appendix A of IS : 8440-1977.

7. Workmanship and Finish

7.1 Welding used for joining different components shall not be porous and shall be smooth [see IS : 816-1969 Code of practice for use of metal arc welding for general construction in mild steel (*first revision*)].

7.2 The components of the cleaner shall be free from cracks, pits and other visual defects which may be detrimental for their use. The rust preventive coating to the steel components and varnish to the wooden components shall be provided.

8. Marking and Packing

8.1 Marking — Each cleaner shall be marked with the following particulars on the main body:

- a) Manufacturers' name and recognized trade-mark;
- b) Model number;
- c) Batch, code or serial number;
- d) Power rating, kW;

- e) Rated input capacity; and
- f) Direction of rotation of rotating parts.

8.1.1 A minimum cautionary notice worded as follows shall be written in *vernacular* language legibly and prominently on the main body of the cleaner:

- a) DO NOT WEAR LOOSE DRESS, BANGLES, WATCH, ETC, WHILE WORKING;
- b) DO NOT WORK UNDER THE INFLUENCE OF INTOXICANTS LIKE LIQUOR, OPIUM, ETC;
- c) CHILDREN AND AGED PERSONS SHOULD BE DISCOURAGED FOR WORKING ON CLEANER;
- d) DO NOT CROSS OVER MOVING BELTS;
- e) DO NOT OPERATE CLEANER WITHOUT GUARDS AND SAFETY DEVICES;
- f) DO NOT MAKE ADJUSTMENT WHEN CLEANER IS WORKING; AND
- g) DO NOT PUT OR TAKE-OFF BELT WHILE PULLEY IS RUNNING.

8.1.2 *Standard marking* — Details available with the Bureau of Indian Standards.

8.2 *Packing* — The cleaner or its components shall be packed as agreed to between the purchaser and the supplier for safe handling in transit and storage.

EXPLANATORY NOTE

The freshly harvested paddy often contain inert matter like chaff, stems, stones, deteriorated and damaged grain, and weeds and other crop grain. In order to remove these from the basic grains, paddy cleaners are being manufactured and used in the country. A need was, therefore, felt to prepare this Indian Standard to guide the manufacturers and users in production and purchase of quality cleaner.

In the preparation of this standard, assistance has been derived from Post-Harvest Technology Centre, Indian Institute of Technology, Kharagpur.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis shall be rounded off in accordance with IS : 2-1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified values in this standard.